

What is claimed is:

1. A system for stimulating the healing of tissue, comprising:

a porous pad;

an airtight dressing;

a means for connecting a distal end of a conduit through the dressing;

a canister removably connected to a proximal end of the conduit;

a means for applying negative pressure to a wound site;

a first filter positioned between said canister and said means for applying negative pressure; and

a second filter positioned between said first filter and said means for applying negative pressure.

2. The system of claim 1 wherein said first filter and said second filter are incorporated into an opening of said canister.

3. The system of claim 1 further comprising a means for sampling wound fluids.

4. The system of claim 1 further comprising a means for securing said system to a stationary object.

5. The system of claim 1 wherein said means for applying negative pressure to the wound site comprises an electric pump housed within a portable housing.

6. The system of claim 5 further comprising a means for managing a power supply source to power said electric pump.

7. The system of claim 1 wherein said porous pad is comprised of an open cell polymer.

8. The system of claim 6 wherein said means for managing said power supply source is comprised of deactivating a backlight to a display after a predetermined interval.

9. The system of claim 6 wherein said means for managing said power supply source is comprised of preventing electric power from reaching an electric motor until sufficient power has been generated to activate said motor.

10. The system of claim 1 wherein said conduit is comprised of longitudinal partitions that form a drainage conduit and a pressure detection conduit.

11. The system of claim 10 wherein a plurality of said detection conduits are arranged about said drainage conduit.
12. The system of claim 10 wherein said means for sampling fluids is comprised of a resealable access port to said drainage conduit.
- 5 13. A system for stimulating the healing of tissue, comprising:
a porous pad;
an airtight dressing;
a means for connecting a distal end of a drainage tube through said dressing;
a canister removably connected to a proximal end of the drainage tube;
10 a self-contained pumping mechanism for applying negative pressure to the wound site; and
a means for managing a power supply to said self-contained pumping mechanism.
14. The system of claim 10 wherein said means for managing said power supply comprises deactivating a backlight to a display after a predetermined interval.
- 15 15. The system of claim 10 wherein said means for managing said power supply comprises preventing electric power from reaching an electric motor until sufficient power has been generated to activate said motor.
16. The system of claim 10 further comprising a means for sampling wound fluids.
17. The system of claim 10 further comprising a means for securing said system to a
20 stationary object.
18. The system of claim 10 wherein said porous pad is comprised of a polyvinyl alcohol foam.
19. A system for stimulating the healing of tissue, comprising:
a porous pad;
25 an airtight dressing;
a means for applying negative pressure to a wound site;
a canister removably connected to said means for applying negative pressure;
a housing for containment of said canister and said means for applying
30 negative pressure; and
a means for securing said housing to a stationary object.

20. The system of claim 19 wherein said means for applying negative pressure to the wound site is comprised of an electric pump.
21. The system of claim 20 wherein said electric pump includes a power supply supplied by a portable power unit.
- 5 22. The system of claim 21 wherein said power supply is managed by a power management means.
23. The system of claim 22 wherein said power management means is comprised of deactivating a backlight to a display on said housing after a predetermined interval.
- 10 24. The system of claim 22 wherein said power management means is comprised of preventing electric power from reaching an electric motor until sufficient power has been generated to activate said motor.
25. The system of claim 19 wherein said porous pad is comprised of a polyvinyl alcohol foam.
- 15 26. The system of claim 19 wherein said means for supplying said negative pressure to the wound site is comprised of a conduit having a proximal end and a distal end, and wherein said proximal end is removably connected to said canister and said distal end is in fluid communication with the wound site.
- 20 27. The system of claim 26 wherein said conduit is comprised of longitudinal partitions that form a drainage conduit and a pressure detection conduit.
28. The system of claim 10 wherein a plurality of said detection conduits are arranged about said drainage conduit.
29. The system of claim 26 further comprising a means for sampling wound fluids.
- 25 30. The system of claim 29 wherein said means for sampling wound fluids is comprised of a resealable access port.
31. A system for stimulating the healing of tissue, comprising:
- a porous pad;
 - an airtight dressing;
 - a means for applying negative pressure to a wound site; and
 - 30 a means for varying said negative pressure over a time interval.

32. The system of claim 31 wherein said means for varying said negative pressure comprises adjusting actual pressure to meet a varying target pressure.

33. The system of claim 32 wherein said varying target pressure oscillates between a target maximum and a target minimum pressure.

5 34. A system for stimulating the healing of tissue, comprising:

a porous pad;

an airtight dressing;

an oscillating pump for applying negative pressure to a wound site; and

a means for maximizing pump flow rate over a pressure range.

10 35. The system of claim 34 wherein said means for maximizing pump flow rate comprises a means for varying a drive frequency.

36. The system of claim 35 wherein said means for varying said drive frequency comprises:

a pressure sensor for measuring pressure across said pump;

15 a control system for determining optimum drive frequency for said pump relative to pressure detected by said pressure sensor; and

a variable frequency drive circuit for driving said pump at said optimum drive frequency.